

The Science of Health Disparities

Inaugural UMB-UMBC
Research and Innovation Partnership Symposium
January 30, 2015

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Objectives

- Overview of NIH and NIMHD
- Discuss population health
- Identify factors contributing to health disparities
- Define strategies to reduce and eliminate health disparities, including plans to diversify the biomedical workforce

The NIH Mission

*“To support **science** in pursuit of **knowledge** about the **biology** and behavior of living systems and to apply that knowledge to extend **healthy life** and reduce the burdens of **illness** and **disability**.”*

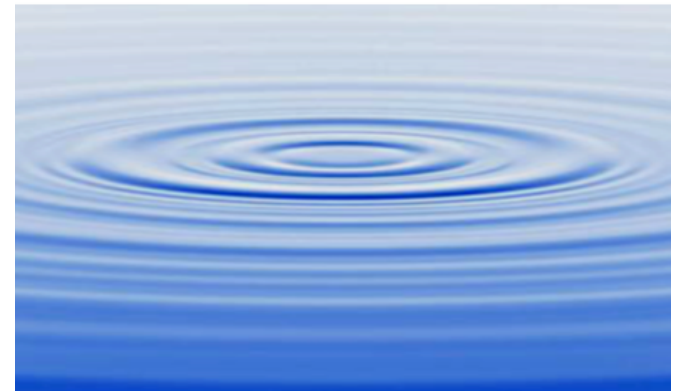
In setting research priorities, every voice counts



We have a responsibility to explain impact of research...

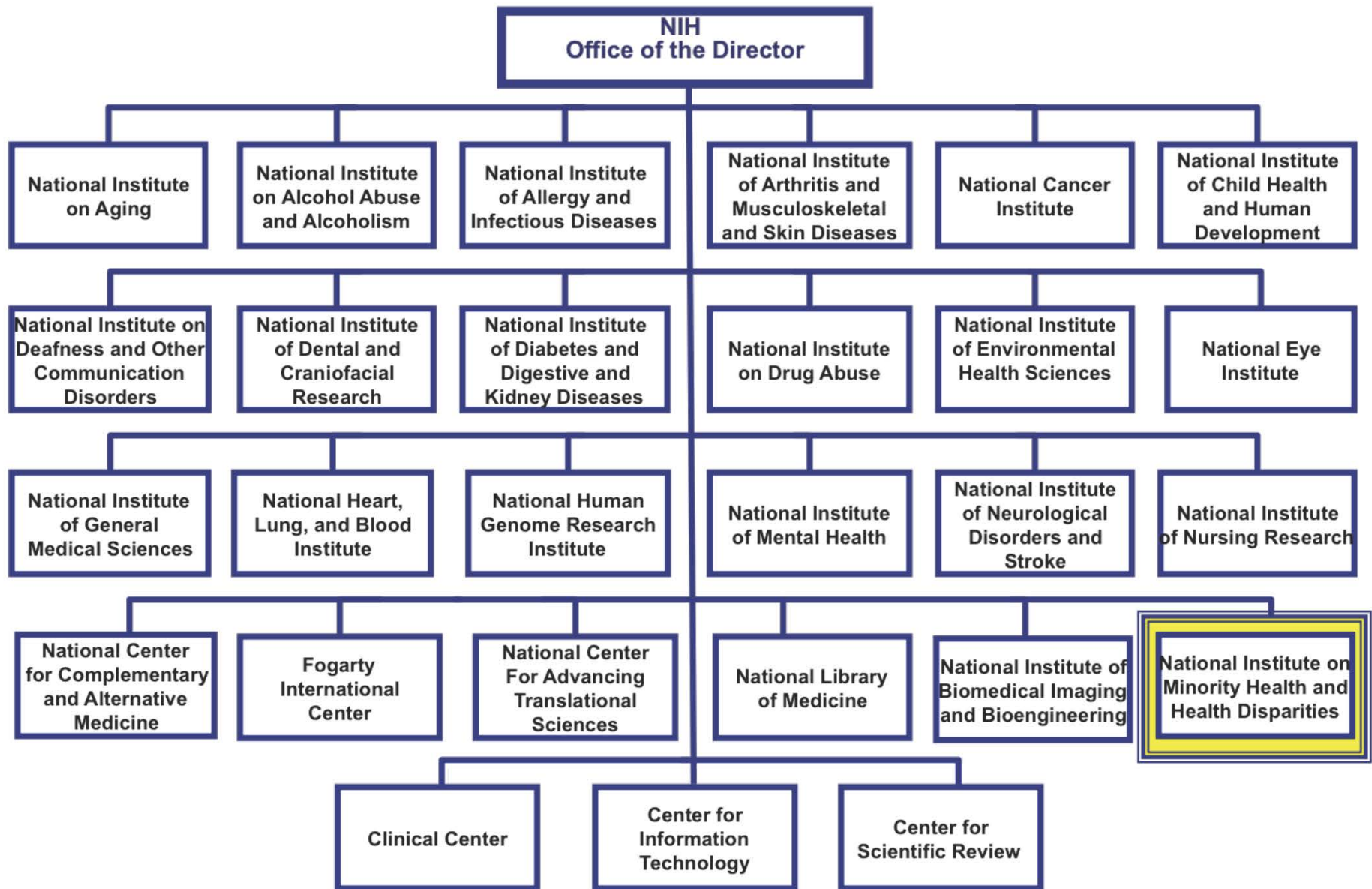
- **Stimulating the economy**
- **Creating and preserving jobs**
- **Advancing biomedical discoveries**

And most importantly,



Improving People's Lives





NIMHD History

- Creation of the Office of Research on Minority Health
The NIH Revitalization Act of 1993
(Public Law 103-43)
- Creation of the National Center on Minority Health and Health Disparities
The Minority Health and Health Disparities
Research and Education Act of 2000
(Public Law 106-525)
- Creation of the National Institute on Minority Health and Health Disparities
The Patient Protection and Affordable Care Act of 2010
(Public Law 111-148), received funding authority
(approximately \$268M in fiscal year 2014)

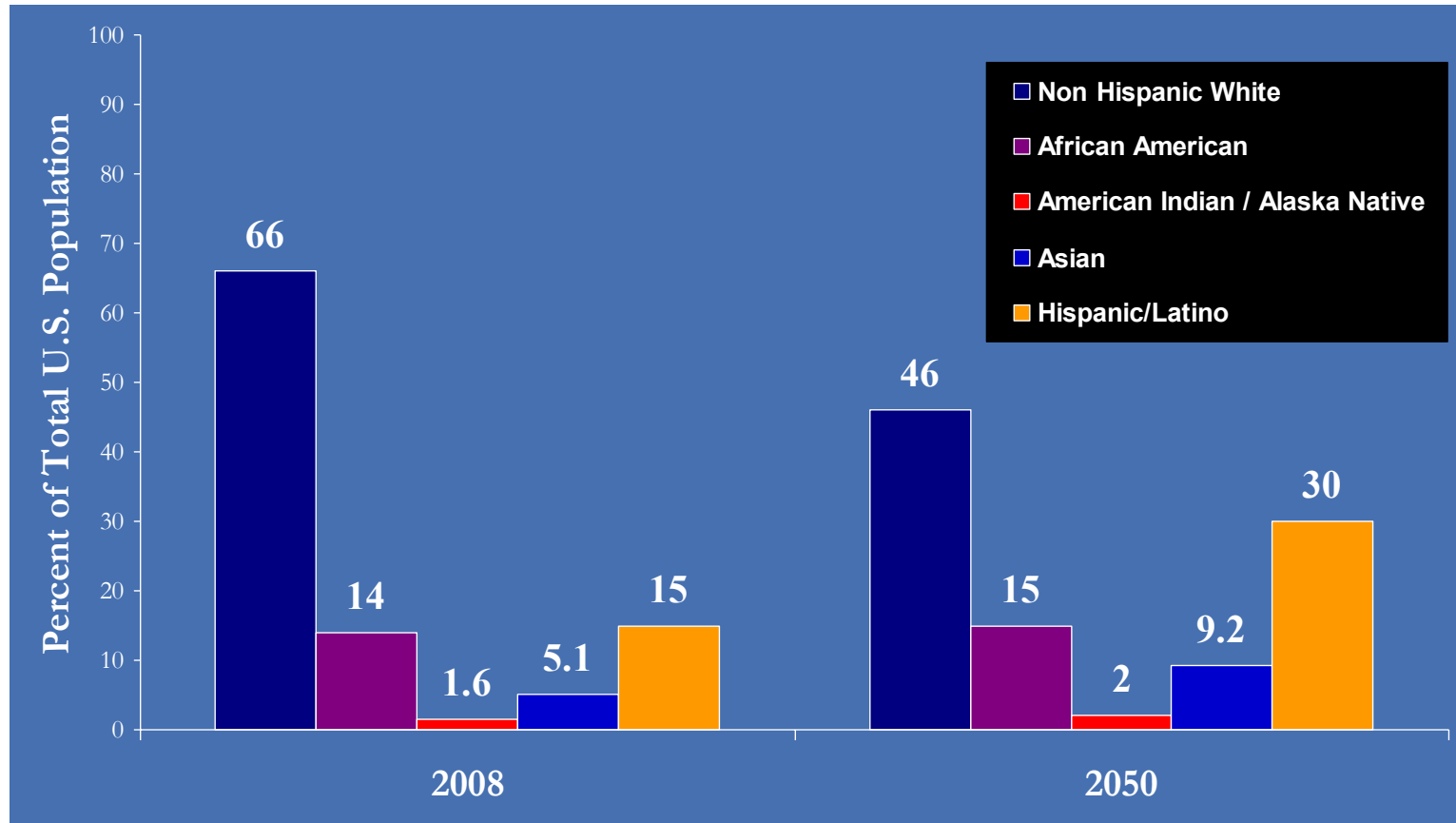


The mission of the National Institute on Minority Health and Health Disparities (NIMHD) is to lead scientific research to improve minority health and eliminate health disparities. To accomplish this, NIMHD (1) plans, reviews, coordinates, and evaluates all minority health and health disparities research and activities of the National Institutes of Health, (2) conducts and supports research on health disparities, (3) promotes and supports the training of a diverse research workforce, (4) translates and disseminates research information, (5) fosters innovative collaborations and partnerships.

Minority Health and Health Disparities

- **Minority Health** -- attention is given to health outcomes associated with a particular **population group** - correlated with race and ethnicity
- **Health Disparities** “A population is a health disparity population if there is a significant disparity in the overall rate of disease incidence, prevalence, morbidity, mortality or survival rates in the population as compared to the health status of the general population.” *Minority Health and Health Disparities Research and Education Act United States Public Law 106-525 (2000), p. 2498*

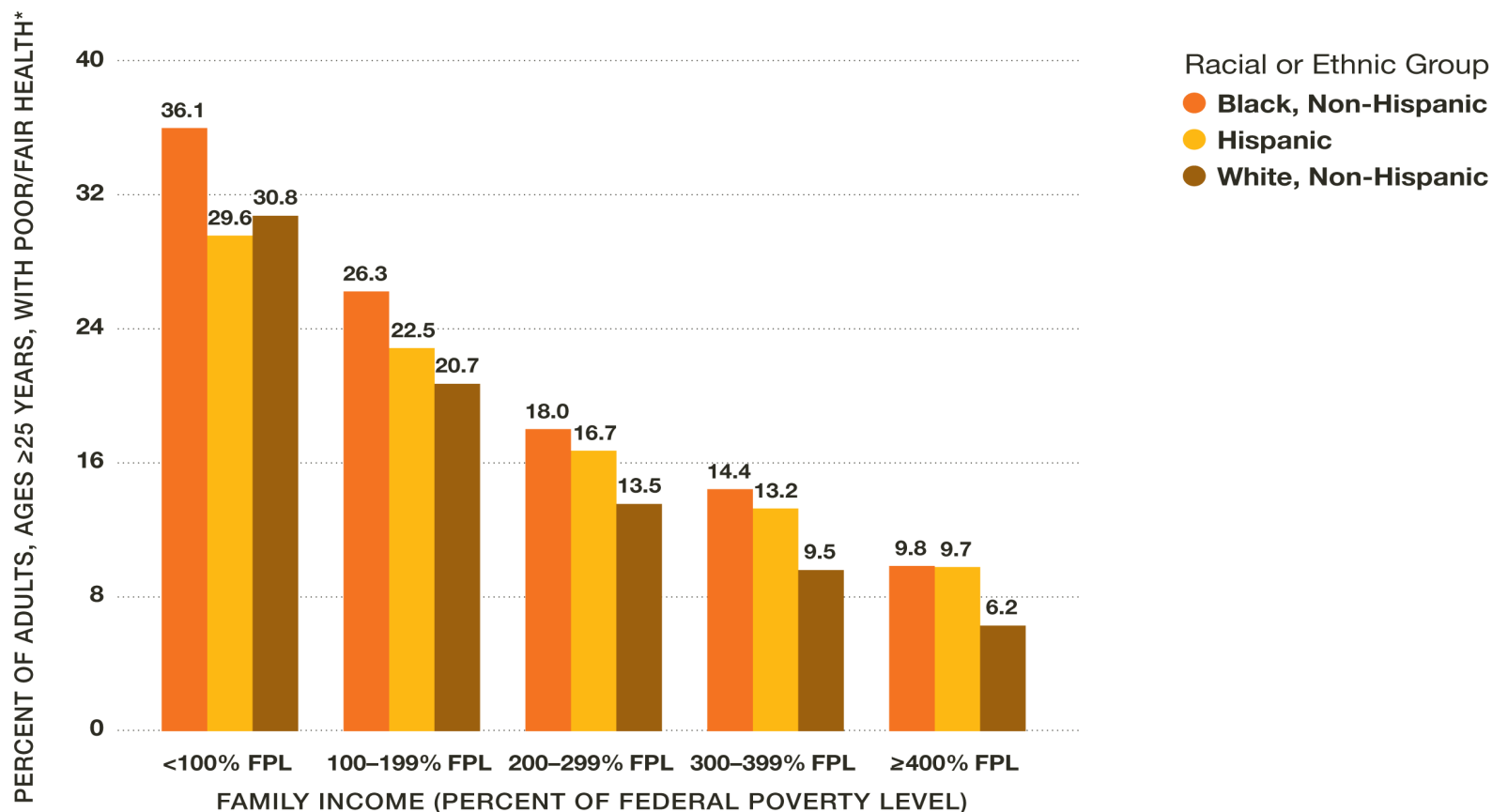
Population of the United States by Race & Hispanic Origin: 2008 & Projected 2050



Source: U.S. Census Bureau, 2008 National Population Projections, August 14, 2008
<http://www.census.gov/Press-Release/www/releases/archives/population/012496.html>

Racial or Ethnic Differences in Health Regardless of Income

Racial or ethnic disparities do not simply reflect differences in income. Racial or ethnic disparities in the likelihood of poor or fair health are seen within each income group. Both income and racial or ethnic group matter.



Prepared for the Robert Wood Johnson Foundation by the Center on Social Disparities in Health at the University of California, San Francisco.

Source: National Health Interview Survey, 2001–2005.

*Age-adjusted

© 2008 Robert Wood Johnson Foundation

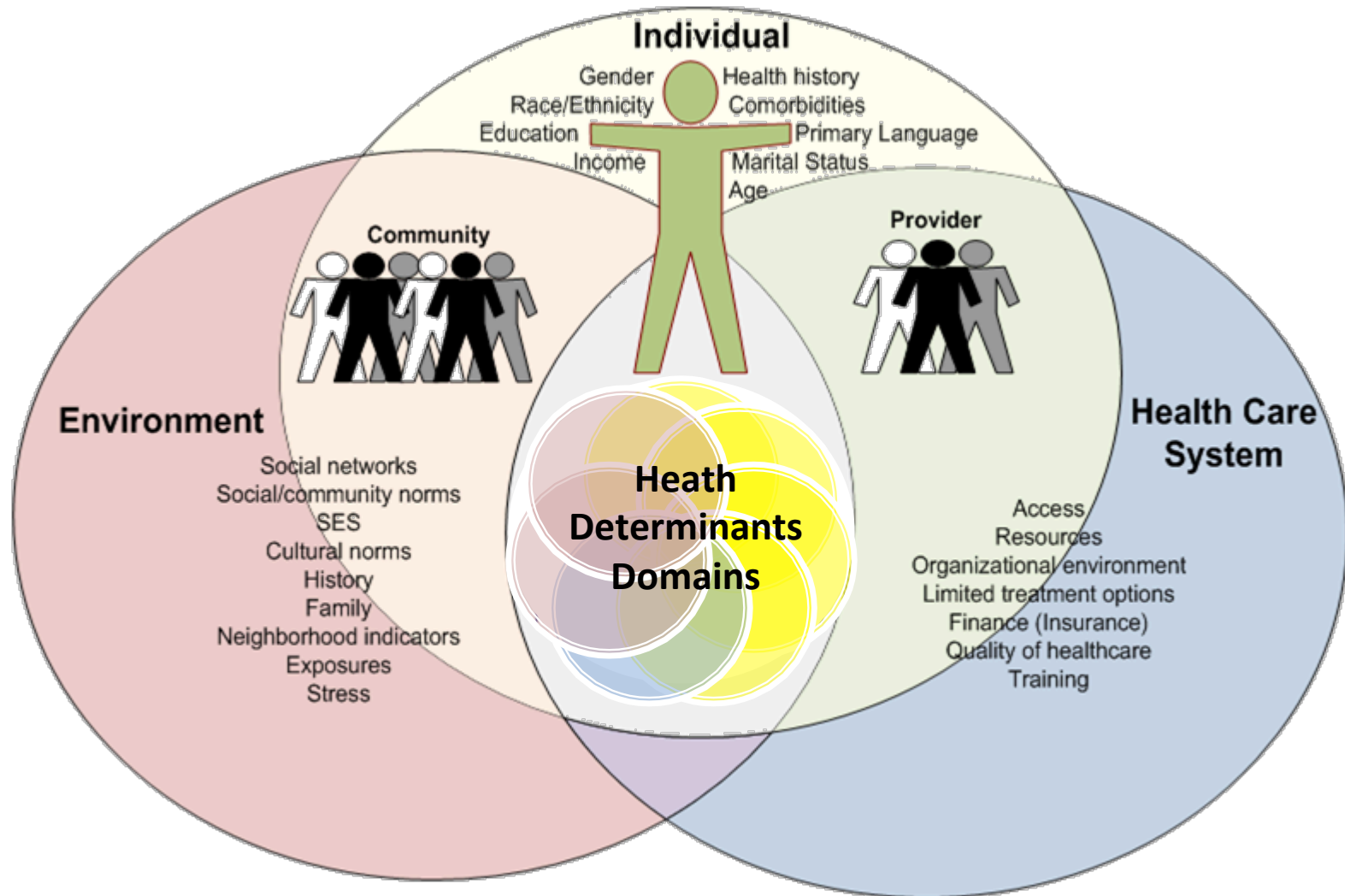
www.commissiononhealth.org



Health Determinants

A Focus of Health Disparities Research

Health Disparities Research: Examines Complex & Interactive Domains through Life Course

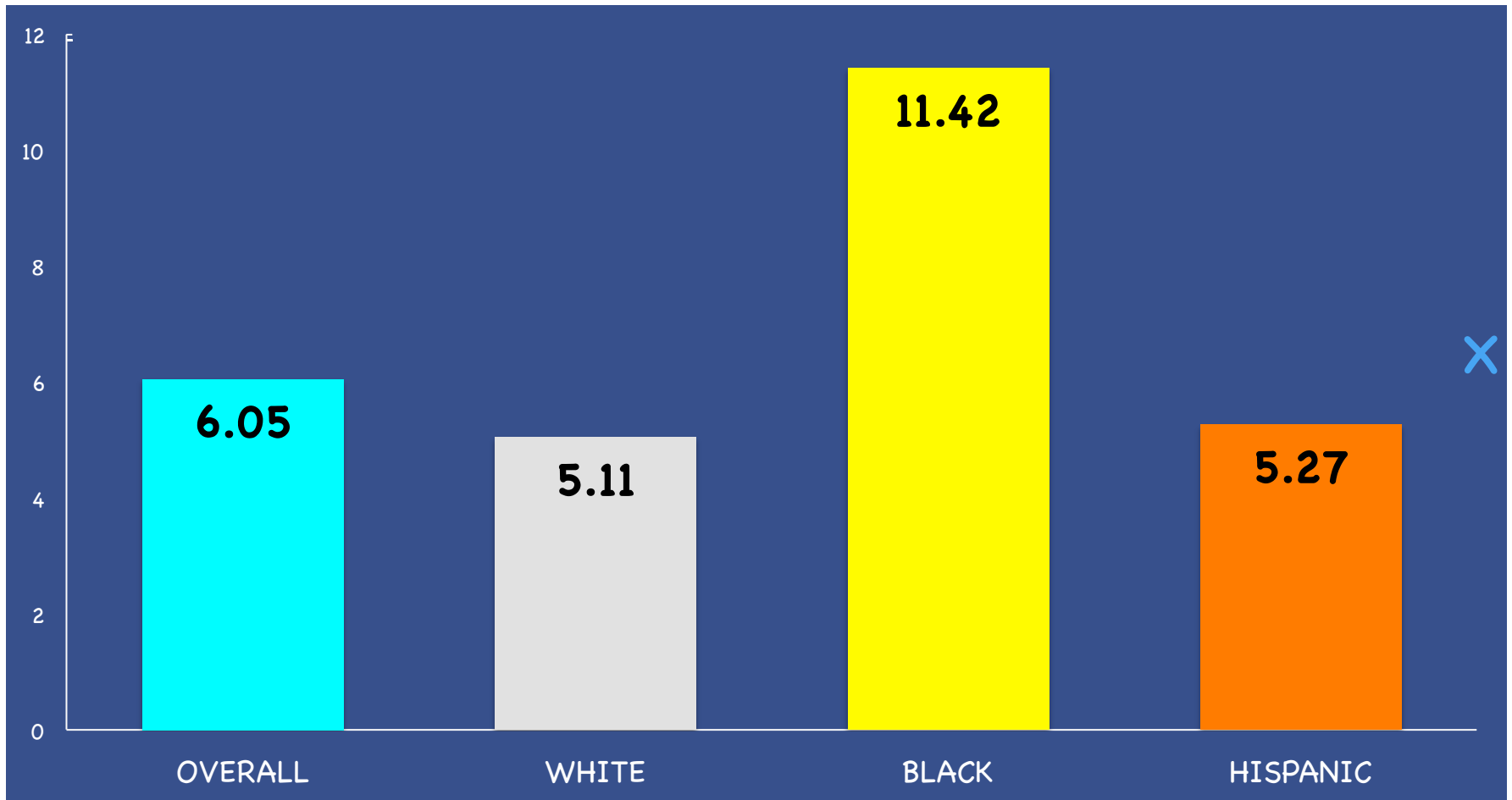


In 2000, U.S. Department of Health and Human Services Launched Initiative to Reduce Health Disparities in Six Areas

- Cancer
- Diabetes
- HIV/AIDS
- Cardiovascular Disease
- Immunizations
- Infant Mortality



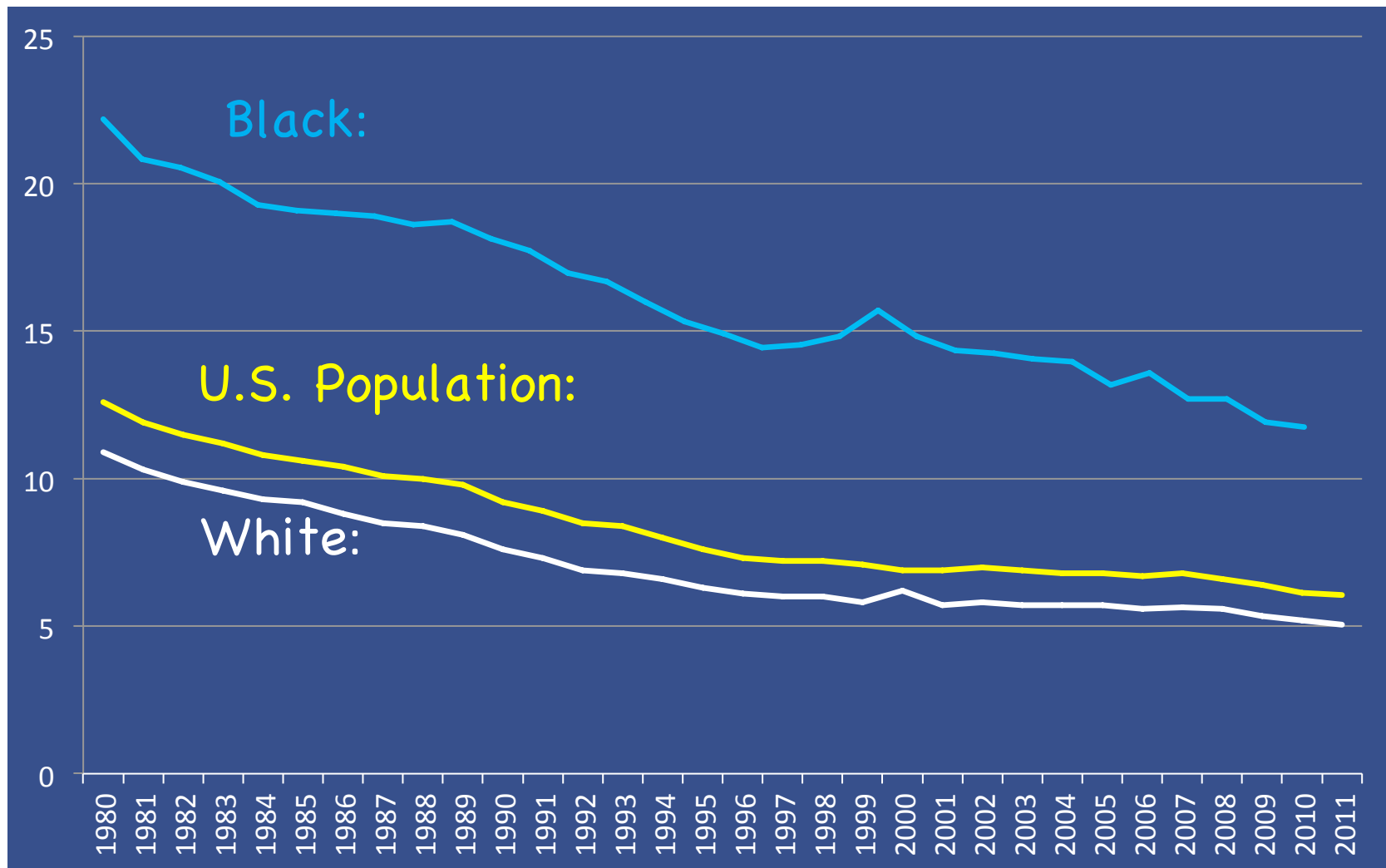
U.S. Infant Mortality Rate: 2011



X : HP 2020 Goal

U.S. Infant Mortality Rates: 1980-2011

(per 1000 live births)



Infant Mortality

An iceberg floating in dark water under a cloudy sky. The visible tip of the iceberg is labeled with causes of infant mortality. The much larger submerged part of the iceberg is also labeled, illustrating that the visible causes are only a fraction of the total problem.

Premature Births

Congenital Anomalies

SUID

Maternal Pregnancy Complications

Placental or Cord Anomalies

Infant Mortality and Health Disparities

Health Determinants

Racism

Biology

Neighborhoods

Hopelessness

Unemployment

Poverty

Genetics

Stress

Limited Access
to Care

Housing

"Medical baggage"

Incarceration rates

Smoking

Fatherless

households

Substance Use

Lower graduation rates

**Under-
Educated**

No Insurance

Family Support

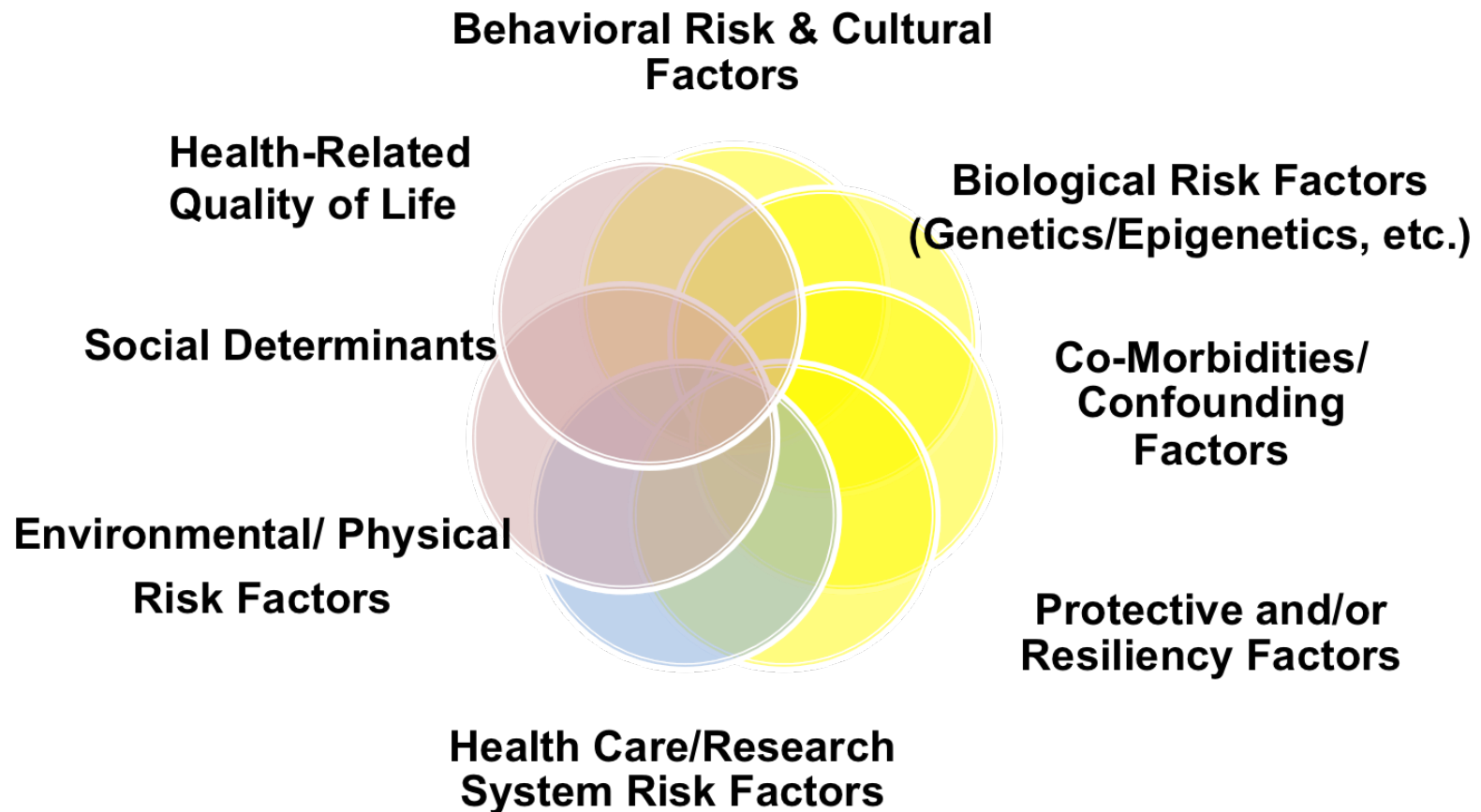
Poor Working Conditions

Teen Births

Nutrition

Health Determinants Domains

(Examined in order to explain variance resulting in health disparities)





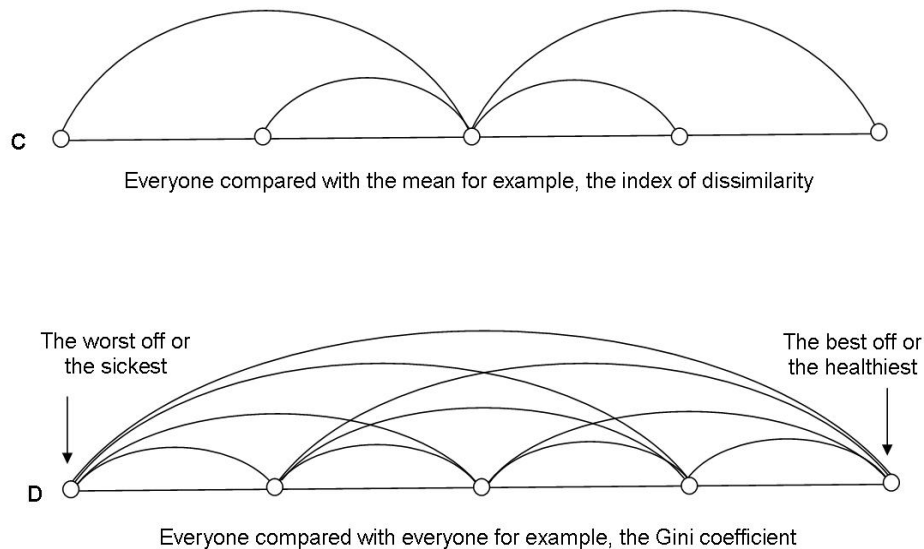
Health Disparities Research

- Examines the etiology of differences
- Considers tailored interventions
- Validates effectiveness

The Science of Health Disparities Research

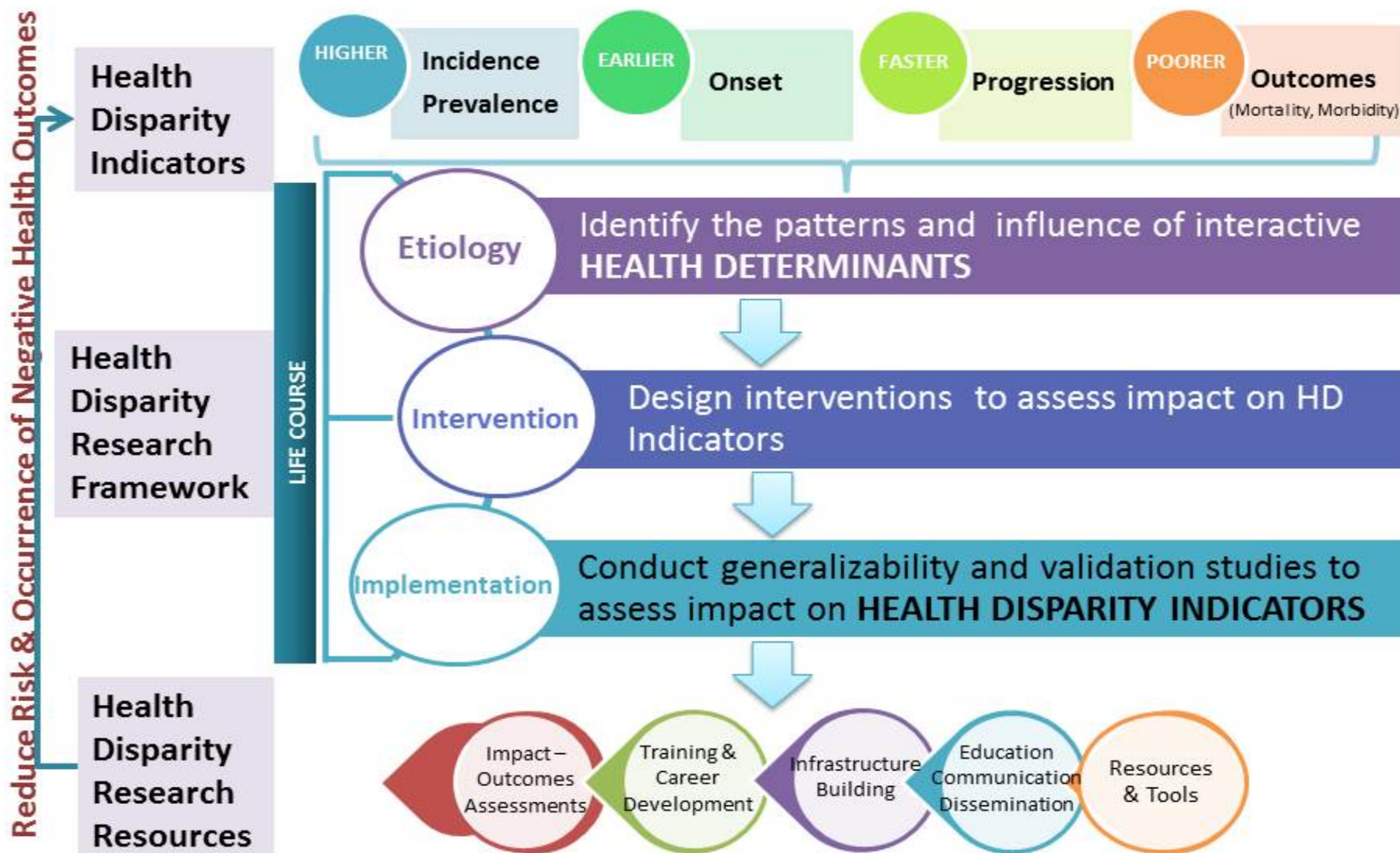
- Utilizes a multi-disciplinary systems approach across life span that examines the contributing role of health determinants to health disparities
- Requires understanding that choice of reference group will affect size of disparity
- Includes identifying research methodologies; measures; metrics; and big data collection, analysis and management
- Includes a diverse biomedical workforce

Reference Group or Comparison



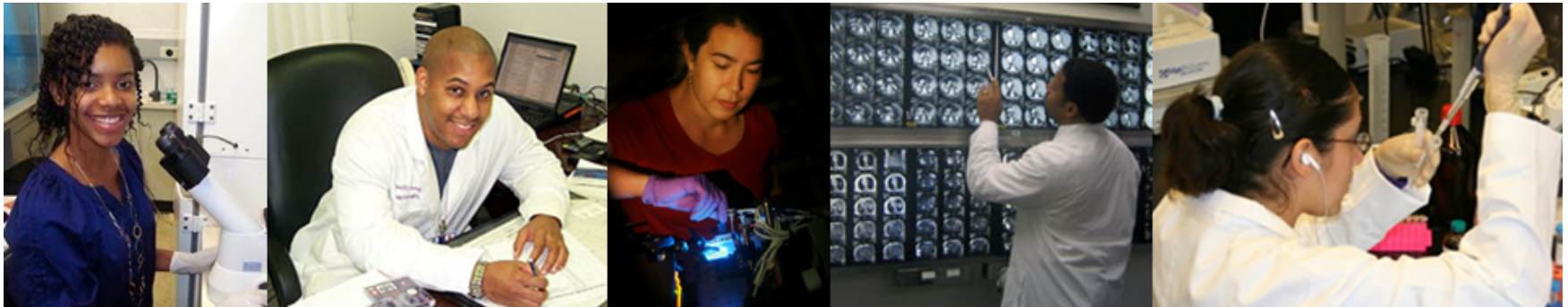
The choice of the reference group will affect the size of the disparity

A Model for Health Disparities Research: Multi-disciplinary Systems Approach Across Life Course



More Diversity in the Biomedical Workforce is Needed

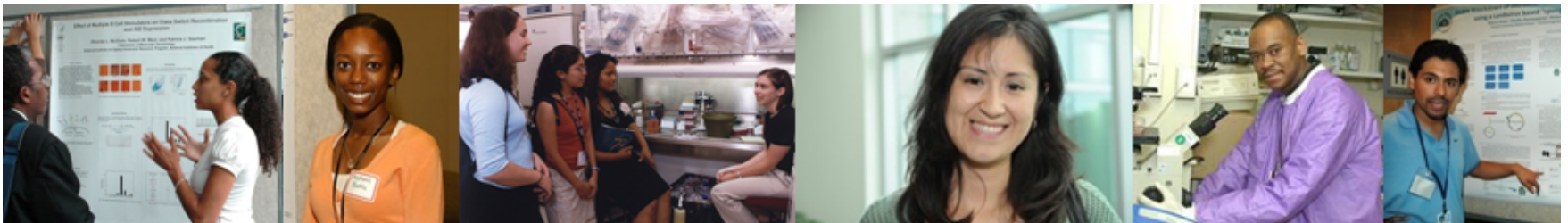
- NIH has long recognized the importance of workforce diversity
 - We must engage the best and brightest minds – including those from underrepresented groups, and across all demographic sectors – if we are to fulfill our mission, and improve health
- As our nation's population grows more diverse, NIH's need to establish a more diverse research workforce grows more urgent



Why We Need Diversity

Diversifying the biomedical workforce will:

- Lead to the recruitment of the most talented researchers from all groups
- Improve the quality of the training environment
- Balance and broaden the perspective in setting research priorities
- Improve the ability to recruit subjects from diverse backgrounds into clinical research protocols
- Improve the nation's capacity to address and eliminate health disparities



Why We Need Diversity: An Example

COLLABORATING WITH PEOPLE LIKE ME:
ETHNIC CO-AUTHORSHIP WITHIN THE US

Richard B. Freeman
Wei Huang

Working Paper 19905
<http://www.nber.org/papers/w19905>

February 2014, Revised August 2014
NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2014

“Diversity in inputs by author ethnicity, location, and references leads to greater contributions to science”

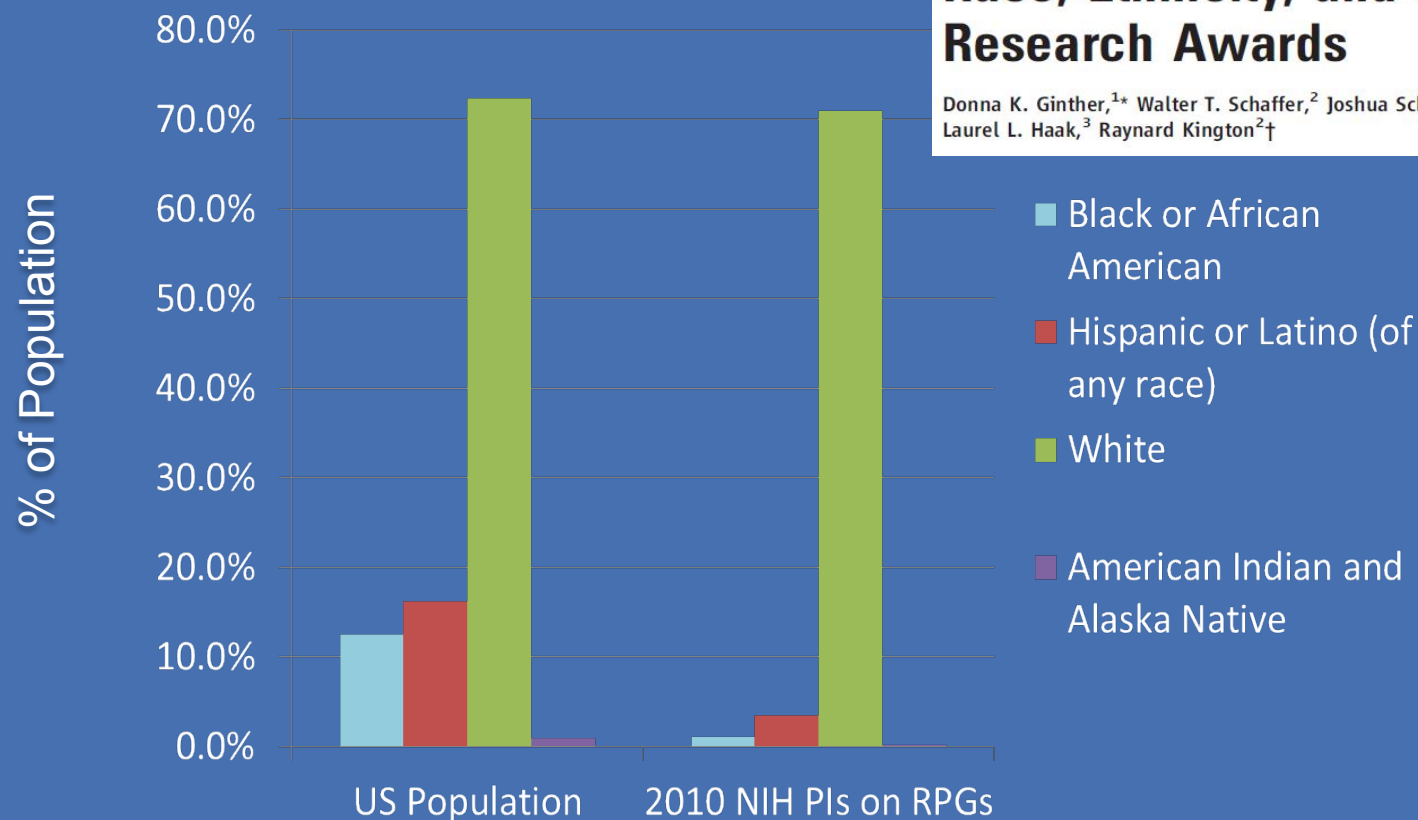
Persistent Underrepresentation in the NIH Principal Investigator Pool

Science

VOL 333 19 AUGUST 2011

Race, Ethnicity, and NIH Research Awards

Donna K. Ginther,^{1*} Walter T. Schaffer,² Joshua Schnell,³ Beth Masimore,³ Faye Liu,³ Laurel L. Haak,³ Raynard Kington^{2†}



Sources: US Census Report 2010; IMPACII; AAMC

Greater Diversity in Research Workforce

POLICYFORUM

SOCIOLOGY

Weaving a Richer Tapestry in Biomedical Science

Lawrence A. Tabak* and Francis S. Collins*

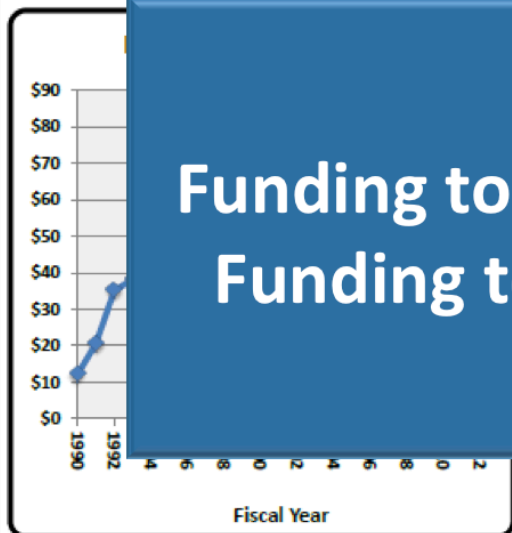
As much as the U.S. scientific community may wish to view itself as a single garment of many diverse and colorful threads, an unflinching consideration of actual data reminds us that our nation's biomedical research workforce remains nowhere near as rich as it could be. An analysis, performed by a team of researchers primarily supported by the National Institutes of Health (NIH) and published in this issue of *Science*, reveals that from 2000 to 2006, black (1) grant applicants were significantly less likely to receive NIH research funding than were white applicants. The gap in success rates amounted to 10 percentage points, even after controlling for education, country of origin, training, employer characteristics, previous research awards, and publication record (2). Their analysis also showed a gap of 4.2 percentage points for Asians; however, the differences between Asian and white

NIH leadership discusses the need for renewed efforts to increase diversity in the U.S. biomedical research workforce.



The Challenge Before Us

NIH Diversity Supplements: >\$60M/yr



Funding to HBCUs in FY12: >\$120M
Funding to HSIs in FY12: >\$219M

Sources: NIH Funding Database, White House Initiative on Educational Excellence for Hispanics/HBCUs FY2012 Performance Reports

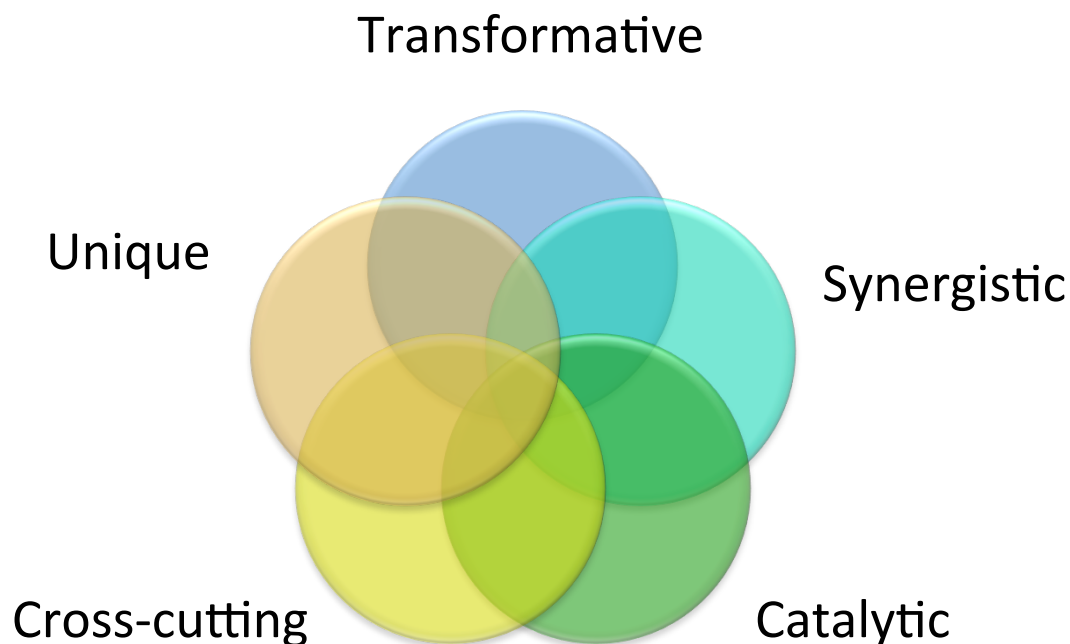
Email your questions to: BUILDNRMNCEC@nih.gov

NIGMS RISE R25s: >\$20M/yr

The NIH Common Fund

*The Common Fund (CF) addresses important challenges and opportunities that are high priority for the NIH **as a whole** and are expected to benefit biomedical research broadly.*

CF programs are:



The NIH Common Fund

- CF Programs address **key challenges** where there is an **opportunity for impact**.
- CF Programs are time-limited: **ten years maximum**.
Deliverables from these programs are designed to catalyze change: via new biological paradigms, new datasets, new technologies, new research/training methods, etc.
- The NIH Common Fund is an appropriation to the Office of the NIH Director (OD):
 - Programs are planned and implemented through partnerships between the OD and Institutes and Centers
 - Financial responsibility and decision-making lies with the OD

Enhancing the Diversity of the NIH-Funded Workforce

Overarching Goal: to merge social science research with biomedical research training to ***develop and test new approaches to training and mentoring on a large scale.***

- Effective approaches disseminated to transform research training and mentoring on a nationwide level.
- Long term expectation: change the way all biomedical researchers are trained.
- Students from underrepresented backgrounds will be primary beneficiaries; all students benefit ultimately, resulting in a stronger biomedical research enterprise.



Transforming Biomedical Research Training and Mentoring

- The ultimate goal is to transform biomedical research training and mentoring programs around the country.

How can this be done?

- Impact through **data** and **dissemination**:
 - Which training approaches result in enhanced persistence of students as they progress through college?
 - What mentoring strategies enhance research success of graduate students?
 - Which mentor training activities have greatest impact on success of mentees?
 - This program will answer these and many other questions; effective approaches will then be disseminated.

Program Initiatives

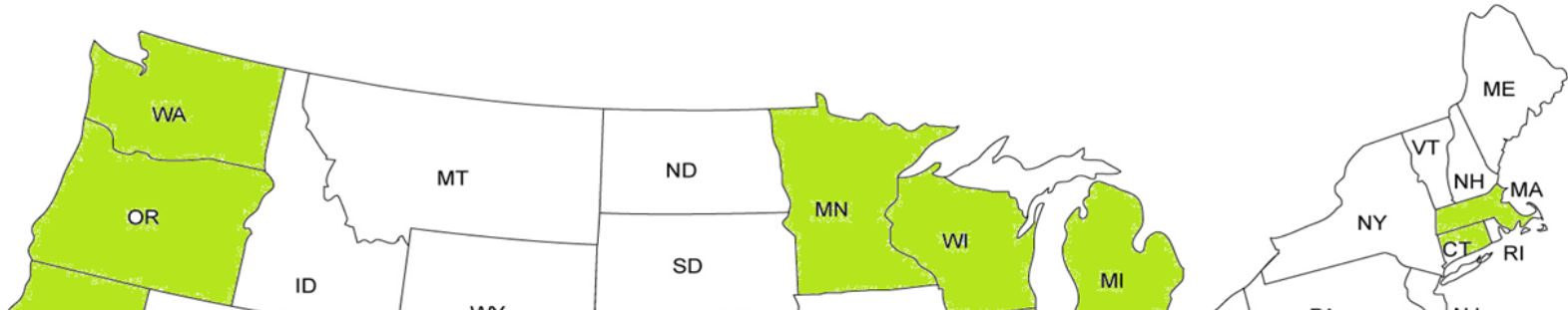
- **Building Infrastructure Leading to Diversity (BUILD):**
 - Experimental training awards: how to attract & retain students from diverse backgrounds into biomedical research workforce
- **National Research Mentoring Network (NRMN):**

Nationwide network of mentors from variety of disciplines:

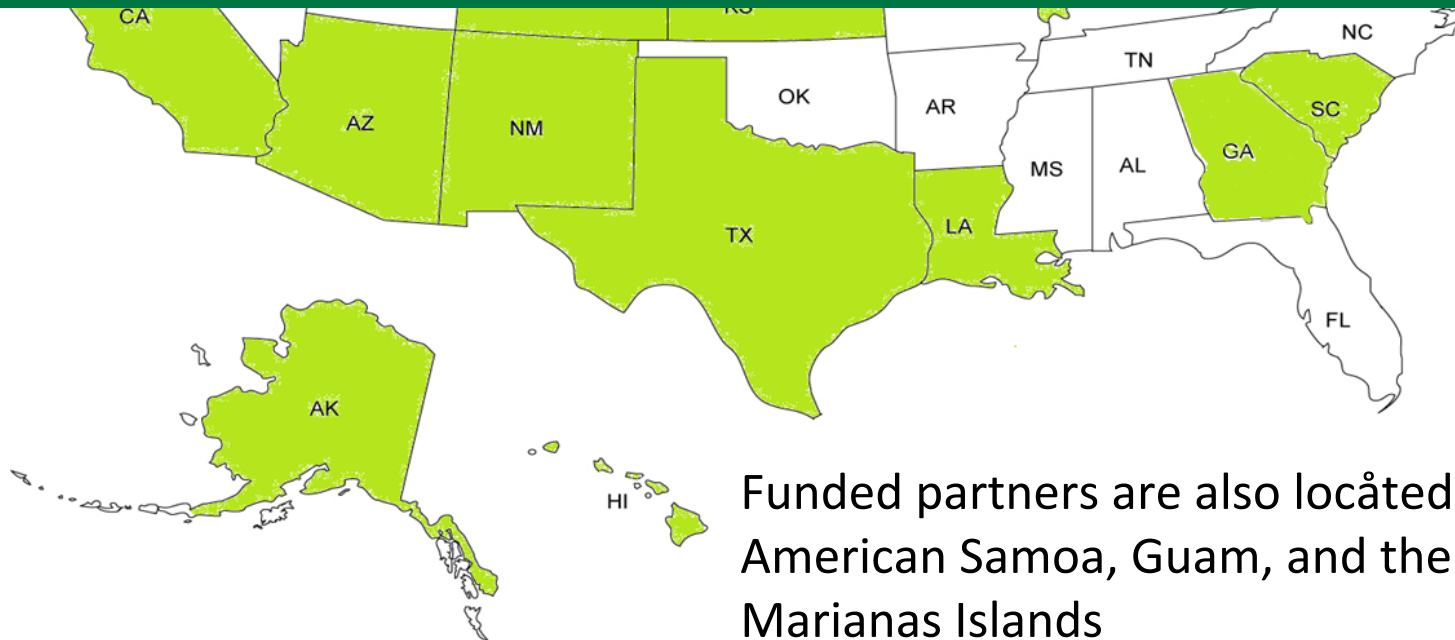
 - Define best practices for mentoring at all career stages
 - Training for mentors
 - Networking & professional development for mentees
- **Coordination and Evaluation Center (CEC):**
 - Rigorously evaluate BUILD and NRMN programs to determine **WHAT WORKS AND FOR WHOM**
 - Dissemination of successful training & mentoring strategies

Awardees will work together as a Consortium in partnership with the NIH

Encompassing Diversity



Additional partners are anticipated including those from States not yet represented



Funded partners are also located in American Samoa, Guam, and the North Marianas Islands

UMBC BUILD Partner Institutions

Building Infrastructure Leading to Diversity (BUILD)

University of Maryland Baltimore County

Anne Arundel Community College

Gallaudet University

Howard Community College

Montgomery College

Prince George's Community College

The Community College of Baltimore County

University of Maryland School of Medicine

CHRONICLE

Thursday, October 30, 2014

Biologist to Direct Major NIH Initiative on Diversity

10/30/14

By ED HAYWARD | CHRONICLE
Published: Oct. 30, 2014

TheScientist

EXPLORING LIFE, INSPIRING INNOVATION

NIH: \$31M to Boost Workforce Diversity

A dozen academic research groups receive substantial National Institutes of Health funding to improve the diversity of the US biomedical community.

By Jef Akst | October 24, 2014

The University of New Mexico



NEWSbeat

NIH award aims to boost diversity in New Mexico's biomedical research workforce

By Michael Haederle — October 23, 2014



ALASKA PUBLIC MEDIA *Life. Informed.*

NIH Awards UAF \$23.8 Million For New Diversity Program in Biomedical Research

By Emily Schwing, KUAC - Fairbanks | October 24, 2014

CRAIN'S DETROIT BUSINESS

Detroit and Southeast Michigan's premier business news and information website

Originally Published: October 22, 2014 3:30 PM Modified: October 22, 2014 4:10 PM

NIH awards \$21.2M to Detroit colleges to improve diversity in biomedical science

By Kirk Pinho



news for Michigan

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91.7 FM Ann Arbor/Detroit • 91.1 FM Flint
104.1 FM West Michigan

Education

6:49 PM THU OCTOBER 23, 2014

Four Detroit colleges share \$21 million NIH award



\$21M NIH Grant Will Help Detroit Colleges Improve STEM Diversity

Sarah Schmid | 10/27/14

THE CHRONICLE OF HIGHER EDUCATION Government

October 22, 2014

NIH Allocates \$31-Million to Tackle Racial Gaps in Training

By Paul Basken

NIMHD Extramural Programs

- Investigator-initiated research project grants
- Centers
- Small business and technology research grants
- Science Education Program
- Loan repayment program
- Conference Grants
- Academic Research Enhancement Awards (AREA, R15)
- Training Grants (new in 2016)

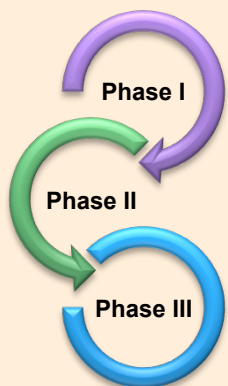
NIMHD Community-Based Participatory Research (CBPR) Program

Support community intervention research studies using CBPR principles and methods to reduce and eliminate health disparities in any disease or condition of major concern to the community.



NIMHD SBIR/STTR Program

Objectives of Three SBIR/STTR Phases:



- **Phase I:** Establish the technical/scientific merit and feasibility of the proposed research.
- **Phase II:** Continue research or development efforts initiated in Phase I.
- **Phase III:** Bring innovative technologies to the commercial market.

NIMHD Loan Repayment Program

Goal:

Increase the pool of extramural researchers who conduct health disparities research

- Health Disparities Research (HDR-LRP)
 - ▶ Supports health professionals who engage in basic, clinical, behavioral, social sciences or health services research addressing health disparities.
- Extramural Clinical Research (ECR-LRP)
 - ▶ Supports health professionals from financially disadvantaged backgrounds who engage in clinical research.

Award Amount:

- \$35,000 annually for two years (renewable)

NIMHD Science Education Program (R25)

Goal:

Support educational, mentoring, and/or career development programs for individuals from health disparity populations who are underrepresented in biomedical, clinical, behavioral and social sciences.

Focus areas include:

- Mentoring and Career Development
- Health Professions Research Capacity-Building
- Outreach and Dissemination

Eligibility:

- All investigators

NIMHD Resource-Related U24

Goal:

Support development of resources for the conduct of research in the biomedical, clinical, behavioral and social sciences.

Focus on one of the following areas:

- Bioethics
- Global Health Research
- Data Infrastructure and Information Dissemination
- Healthcare for Rural Populations Research

Eligibility:

- All investigators

Transdisciplinary Collaborative Centers for Health Disparities Research

- Centers to conduct coordinated research, implementation and dissemination activities at the regional level.
- Transdisciplinary coalitions of academic institutions, community organizations, service providers and systems, and government agencies.
- Focus on one of three topic areas:
 - Social determinants of health
 - Policy research
 - Men's health

What does it mean to partner with the NIMHD?



Support for New Ideas and Approaches

- NIH Medical Research Scholars Programs
- IOM Roundtable on the Future of Training in Population Health Sciences

Grantsmanship Tips

- Get to know the scientists and clinicians who hold grants at your medical college
- Study the NIH and NIMHD websites for detailed descriptions of all funding opportunities
- Go to workshops that teach grant writing
- Talk to NIH personnel if you have a well-defined research question
- Promote understanding of the causal relationships of social determinants, environment, and biology to disease/disorder inequities
 - Engage community-based organizations in collaborative research, especially prevention and applied
- Monitor and assess policies, legislation, and current events that could influence health disparities, and conduct research to assess this impact



National Institute on Minority Health and Health Disparities

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